

**Before the
Federal Communications Commission
Washington, D.C. 20554**

RECEIVED**SEP 14 1998**FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)	
)	
Amendment of Parts 2 and 90 of the)	ET Docket No. 98-95
Commission's Rules to Allocate the)	RM-9096
5.850-5.925 GHz Band to the)	
Mobile Service for Dedicated Short)	
Range Communications of Intelligent)	
Transportation Services)	

Comments of Motorola

Motorola hereby submits its Comments to the FCC's Notice of Proposed Rule Making¹ to allocate 75 MHz of spectrum for use by Dedicated Short Range Communications ("DSRC") of Intelligent Transportation Systems ("ITS"). While Motorola strongly supports the allocation of spectrum to this service, we ask that the FCC properly balance the need for an allocation of this size with other competing uses of the spectrum. Indeed, we believe that the public good is better served by proposing some spectrum for ITS applications while, at the same time, retaining a portion of the band for use by very low power hearing and information communications devices.

Background

In its original petition for rulemaking filed on May 19, 1997, the Intelligent Transportation Society of America ("ITS America") requested that the Commission allocate the band from 5.850-5.925 GHz on a co-primary basis for DSRC-

¹ See NPRM, ET 98-95, RM-9096, released June 11, 1998.

based ITS services.² In its NPRM, the Commission essentially has proposed that this allocation be adopted as proposed. However, in the same proceeding the Commission recognizes the interest shown in this band by manufacturers of low power hearing assistance devices such as ReSound, and requests input on the likelihood of future use of this band for those purposes.³ In addition, the Commission questions whether the proposed ITS allocation is excessive for the demonstrated need, given its policy of promoting efficient use of the radio frequency spectrum.⁴

Motorola Strongly Supports An Allocation Accommodating Both ITS Applications And Low Power Hearing Assistance Devices.

We agree with the Commission that the record in the proceeding “overwhelmingly supports the use of spectrum to support ITS services to increase the safety and efficiency of the Nation’s transportation infrastructure.”⁵ In addition we support the allocation of spectrum in this band for ITS services in particular because of the international alignment such an allocation will bring. This will, as the Commission points out, allow both manufacturers and consumers to benefit from global economies of scale in production of equipment and development of services for these applications.⁶

However, we also recognize the great importance the Commission has placed on technologies that will allow the disabled community to access the remarkable advances occurring in the world of telecommunications. The present Chairman of the FCC, in his role as chairman of the FCC’s Disabilities Task Force, says that he is “committed to ensuring that the telecommunications revolution does not become

² See Public Notice, DA 97-1106, RM-9096, released May 28, 1997.

³ See NPRM at ¶21.

⁴ See NPRM at ¶14.

⁵ See NPRM at ¶7.

segregated, between "haves" and 'have nots'. People with disabilities must have equal access to the information age; the Federal Communications Commission has an obligation to ensure that telecommunications are accessible and usable to the 54 million Americans with disabilities."⁷ As part of its activities to fulfill this obligation, the FCC is conducting proceedings on many related items, including Sections 255 and 706 of the Telecommunications Act of 1996. While addressing the latter proceeding, the FCC Chairman commented that "now is the time to help tear down those barriers and give Americans with disabilities the opportunity they deserve to maximize their productivity and their enjoyment of life."⁸ The low-power hearing assistance devices that will operate in this band are a direct response to these calls for action on behalf of the disabled community by activist groups, Congress, and the Commission itself.

We believe that sufficient spectrum is available in the 5.850-5.925 GHz band to accommodate both of these important applications. Since the low-power hearing devices, with a nominal transmit power of 1mW cannot coexist with the 30 W EIRP limits proposed by the FCC for DSRC devices, we recommend that the Commission reduce the proposed allocation of spectrum for DSRC-based applications from 75 MHz to 50 MHz. We propose that the band from 5.875-5.925 GHz be allocated for DSRC, and that the band from 5.850-5.875 GHz retain the current restrictions.

⁶ See NPRM at ¶13.

⁷ See the Internet web-site of the Disabilities Task Force at <http://www.fcc.gov/dtf/>.

⁸ See <http://www.fcc.gov/Speeches/Kennard/Statements/stwek860.html>.

Reducing the proposed ITS allocation to 50 MHz would be consistent with the spectrum need as calculated in the technical report supporting this proposal.⁹ In that report, the spectrum need “was determined to be 8 channels of 6 MHz each, or 48 MHz total.”¹⁰ An additional 56%, or 27 MHz of additional spectrum, was requested to “facilitate sharing the band with other services.”¹¹ In addition, the ARINC bandwidth requirements are based on transmission of 600 kbps data rates in 6 MHz channels. The report acknowledges that “the data rate could be accomplished in less bandwidth with more complicated modulation schemes,” but says that “the less complex schemes are used to maintain the lowest tag cost possible.”¹²

Motorola is certain that, once the standardization process for the DSRC devices is begun, ITS America will likely discover that technologies exist that will allow its members to provide DSRC-based services to their customers at low cost while using more spectrally efficient technology than was readily available when the ARINC report was prepared over two years ago. These technological advances are being spurred by the rapid transition to spectrally efficient digital technologies as has been the case in such areas as private radio systems (“refarming”), cellular telephony, and broadcast television (DTV).

⁹ Spectrum Requirements for Dedicated Short Range Communications (DSRC): Public Safety and Commercial Applications, prepared for Federal Highway Administration by ARINC, July 1996.

¹⁰ See ARINC Report, page 62.

¹¹ See ARINC Report, page 80.

¹² See ARINC Report, page 62.

The Spectrum Need For Hearing Assistance Devices Has Been Demonstrated

Working together, Motorola and ReSound have created a technology that will be of enormous benefit to the hearing disabled community. The class of products being developed will contain an audio device to be worn at the ear, and a remote-processing unit to be worn at the belt or similar location. Digitized audio information will be sent from the earpiece to the remote unit, where signal-processing techniques can provide enormous advantages to the hearing disabled user. These will include background noise reduction, beam forming, and elimination of reverberations. In addition, this technology will allow hearing disabled users, as well as others, to use a telephone or cellular telephone by sending the audio output from the phone directly into the earpiece. The transmission path from the earpiece to the remote-processing unit will be an RF link using the 5.850-5.875 GHz band. This technology is in the advanced stages of development. In fact, a wired version of the technology as it applies to the public safety market has already been commercialized, and the wireless version as well as the advanced hearing health care products will be available in 1999. The RF equipment necessary to create the wireless product operating in the 5.850-5.875 GHz range has been designed, built, and tested, and it works properly.

In order to provide the types of enhancements necessary to improve dramatically the intelligibility of signals for hearing disabled users, the audio data must be very finely digitized before it is sent to the remote-processing unit. The requirements for a small earpiece, determined by the size of the human ear, and the need for a low power device, dictated by the desire to have a single hearing-aid battery last for about one month, means that no coding of the audio information can be performed. The earpiece

will not be able to perform the processing necessary to encode or decode the audio. The requirements of large amounts of uncoded data to be sent from the ear to the remote processing unit, coupled with the requirement of planning for groups of people, possibly wearing two devices each, to be in close proximity as in a meeting or inside an automobile, explains the need for 25 MHz of spectrum in which to offer this service.

For many reasons, the 5.850-5.875 GHz band is appropriate for hearing assistance devices and, therefore, the Commission's action in the instant proceeding should recognize that fact. From a technical point of view, the frequency of operation must be high enough to allow for very small, yet efficient, antennas that will be nearly invisible when worn near the ear. However, if the frequency used is too high, the efficiency of the semiconductors used in the RF circuitry will suffer. In addition, the higher the frequency used the more the body itself will act to shadow the transmission path from the ear to the remote-processing unit.

It is also highly desirable that the spectrum used be available on a global basis. This paves the way for an international allocation that recognizes the use of these devices and, thus, allows the hearing disabled to take these devices with them wherever they go. The ISM band at 5.8 GHz is an international allocation.

Finally, we recognize that there is some risk associated with deploying a "medical" product on a Part 15, secondary basis.¹³ However, the FCC has recently addressed a similar situation where it "authorized by rule" auditory assistance devices

¹³ See the "Joint Statement of the Federal Communications Commission and the Food and Drug Administration Regarding Avoidance of Interference Between Digital Television and Medical Telemetry Devices", available at http://www.fcc.gov/Bureaus/Engineering_Technology/News_Releases/1998/nret8003.html.


under the Low Power Radio Service.¹⁴ Motorola strongly urges the Commission to consider this option for protecting these important services.

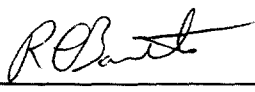
Conclusion

Motorola strongly supports both the applications anticipated by the DSRC-based services of ITS America and those under development by ReSound and Motorola. Because these services cannot co-exist in the same spectrum, the FCC should provide sufficient spectrum for both services. This can be done by allocating the 5.875-5.925 GHz band for DSRC-based services, and by leaving in place the current rules in the 5.850-5.875 GHz band. Finally, the FCC should consider using Part 95 rules to provide protection to medical hearing assistance devices in the 5.850-5.87 GHz band.

Respectfully,

Motorola, Inc.

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¹⁴ See Section 95.1001 of the FCC's Rules

Brooner Mary-AMB004

From: Pamela Ransom [ransom@cgsolutions.com]
Sent: Monday, September 14, 1998 12:46 PM
To: Mary Brooner-AMB004
Subject: updated info

Mary - here is the updated info for Camille's pick up for Tuesdays meeting.

Pick up at 9:30 am - Horizons for the Blind office

Telephone number (847) 836-1400

Directions to office: I-90 to Route 25. North on Route 25, near Route 68 you will see the Meadow Dale Shopping Center. In the shopping center just around the corner from the Payless Shoes store is the entry door into the inside of the shopping mall. Horizons for the Blind is located inside the shopping mall. (the entry to the INSIDE of the mall is abit challenging to find, it is in an inside corner, double door, with very small sign)